

REMARKS

This application contains claims 1-48. Claims 2, 15, 28 and 39 have been canceled without prejudice. Claims 1, 3-5, 12, 14, 16-18, 25, 27, 29-31, 38 and 40-42 are hereby amended. No new matter has been introduced. Reconsideration is respectfully requested.

Applicant thanks Examiner Mew for the courtesy of a personal interview held with Applicant's representative, Daniel Kligler (Reg. No. 41,120) in the USPTO on September 26. At the interview, Applicant's representative presented a draft amendment in order to clarify the distinction of the present invention over the cited art (Mauger et al. - U.S. Patent 6,886,043). It was pointed out that Mauger's teachings are not applicable to establishing a bi-directional data link layer (Layer 2) service, as recited in the amended claims. The Examiner agreed to conduct a further search for relevant art after submission of the amendment.

Claims 1-4, 6, 8-30, 32, 34-41, 43 and 45-48 were rejected under 35 U.S.C. 102(e) over Mauger (cited above). Applicant has amended independent claims 1, 12, 14, 25, 27 and 38 in order to clarify the distinction of the present invention over Mauger. Dependent claims 3-5, 16-18, 29-31 and 40-42 have been amended for proper dependence in view of the cancellation of claims 2, 15, 28 and 39.

Mauger describes a communication network using a three-layer label stack in order to achieve end-to-end connection-oriented behavior with guaranteed quality of service (col. 2, lines 55-58). This label stack permits packets to be routed over label-switched paths in a virtual private network comprising a hierarchical arrangement of three levels of routers (col. 1, lines 60-

65). Mauger is concerned, in other words, with issues of routing and network-layer (Layer 3) protocols.

Claim 1 has been amended to incorporate the limitations of claim 2 and additional limitations taken from the specification (page 15, lines 2-23). The claim recites a method for establishing a bi-directional data link layer service (i.e., a Layer 2 service - see page 1, lines 10-11, in the specification) between users connected to respective data link layer ports of first and second nodes in a network. The method uses a local index, which is generated when a request to initiate the service is submitted at the first node. The first node sends the second node a signaling message containing the index and service parameters of both the first and second nodes. The service parameters indicate at least one of the data link layer ports to which the users are connected. When the second node receives the signaling message, it initiates the service in response to the index and the service parameters, and sends another signaling message back to the first node. Upon receiving this message, the first node activates the requested service, using the data link layer port indicated by the service parameters.

The claimed method, in other words, provides a simple, efficient method for setting up a bi-directional Layer 2 service between users over the network (see page 7, lines 27-32, in the specification, for example). The local index and service parameters permit nodes serving the users at opposite sides of the network to automatically identify the requested service and user ports. The nodes are thus able to initiate and activate the Layer 2 service in both directions in response to a single request submitted at one of the nodes.

Mauger, as noted earlier, is concerned with Layer 3 protocols and networks and does not deal with data link

layer services between user nodes as required by amended claim 1. Thus, Mauger cannot be taken to teach or suggest sending signaling messages containing service parameters of both the user nodes, including an indication of at least one of the data link layer ports. By contrast, in the scenario described by Mauger (col. 7, line 66 - col. 8, line 28), a Layer 3 label-switched path [LSP] is established between network nodes, and only thereafter does the media gateway at each end of the path connect to the respective user terminal. Even when bi-directional operation is chosen (col. 7, lines 62-63), the method described by Mauger must be invoked separately in each direction of transport. Mauger neither teaches nor suggests sending a second signaling message from the second node back to the first node, as recited in claim 1.

Thus, claim 1 as amended is believed to be patentable over Mauger. In view of the patentability of claim 1, dependent claims 3, 4, 6 and 8-11 are also believed to be patentable.

Independent claim 27 also recites a method for establishing a bi-directional data link layer service. This claim is similar to claim 1, except that in claim 27, the local index generated at the first node is itself indicative of the service parameters (which indicate at least one of the first and second data link layer ports). Thus, the first signaling message sent from the first node to the second node contains the index but need not contain separate service parameters.

Claim 27 has been amended in like fashion to claim 1, and is thus believed to be patentable over Mauger for the reasons stated above. In view of the patentability of independent claim 27, dependent claims 29, 30, 32 and 34-37 are also believed to be patentable.

Independent claim 12 recites a method for establishing a data link service connection between first and second nodes via a label-switched tunnel. A local index is generated at the first node, which sends a signaling packet encapsulating the index to the second node. The claim has been amended to clarify that the index is encapsulated in an object comprising at least one bit that is set to a value so as to cause label-switching routers along to tunnel to ignore the object. This limitation is supported in the specification on page 17, lines 30-32. The second node receives and reads the object, and thus initiates the requested service connection.

In rejecting claim 12, the Examiner cited transmission of bearer packages in packets between media gateways in Mauger's system (col. 8, lines 1-28) as an example of objects that are ignored by intermediate nodes along the label-switched tunnels between the gateways. In this case, however, the intermediate nodes simply pop off and read the outermost label on the label stack on each packet and ignore all labels underneath (col. 3, lines 6-25), without regard to the values of bits in objects encapsulated in the packets. Mauger neither teaches nor suggests that the routers might determine whether to ignore a certain object based on a bit value in the object itself, as required by amended claim 12. This feature of the present invention conveniently permits the local index for a data link service to be conveyed using a standard signaling protocol, such as RSVP-TE (page 8, lines 6-14).

Thus, claim 12, as amended, is believed to be patentable over Mauger. In view of the patentability of claim 12, dependent claim 13 is also believed to be patentable.

Independent claims 14, 25 and 38 recite communication networks, which operate on principles similar to the methods of claims 1, 12 and 27, respectively. Claims 14, 25 and 38 have been amended in like fashion to the corresponding method claims, and are thus believed to be patentable for the reasons explained above. In view of the patentability of claims 14, 25 and 38, dependent claims 16-24, 26, 40, 41, 43 and 45-48 are also believed to be patentable.

Dependent claims 5, 7, 31, 33, 42 and 44 were rejected under 35 U.S.C. 103(a) over Mauger in view of Kong et al. (U.S. Patent Application Publication 2002/0176450). In view of the patentability of amended claims 1, 27 and 38, from which these claims depend, claims 5, 7, 31, 33, 42 and 44 are also believed to be patentable.

Applicant has studied the additional prior art references made of record by the Examiner, and believes the claims in the present patent application to be patentable over these references, whether the references are taken individually or in any combination.

Applicant believes the amendments and remarks stated above to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, all the claims in the present patent application are believed to be in condition for allowance. Prompt notice to this effect is requested.

We give authorization to charge our Deposit Account No. 01-1785 in the amount of \$1,020.00 to cover the cost for a 3-Month Extension of Time for a large entity.

Respectfully submitted,

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Dated: November 16, 2005
New York, New York

By: 

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